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**TRANSLATION VERIFICATION CERTIFICATE**

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do solemnly and sincerely state as follows:

THAT I am well acquainted with both the German and English languages and I am capable of correctly translating technical and other written in said languages into English.

THAT the document attached hereto is a true and correct translation of the specification of International Patent Application PCT/IB2004/051715 incorporating amendments made under PCT Article 34 during the Preliminary Examination stage.

AND I MAKE this statement believing it to be true in every particular.

STATED at

Date: 13 February 2006

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## Electric Switch Module

The invention relates to an electric switch module with one or several electric switches disposed on a carrier, of which at least one is conceptualized as a push-pull rocker switch with an actuation member formed by an actuation projection asymmetrically with respect to its rocking axis.

Such electric switch modules are *inter alia* located in motor vehicles, for example in the proximity of the arm rest of the interior trim paneling of the door. Such a switch module, if it is located on the inside of the driver door, comprises several rocker switches, which are provided for actuating the drive of the window lifting mechanism associated with the individual motor vehicle door. These rocker switches are formed as push-pull switches. Following a push actuation of the switch, the window pane of a motor vehicle door is lowered and thus opened; a pull actuation leads to the raising of the previously opened pane and consequently to the closing of the window opening. Such rocker switches include an actuation member with an actuation projection disposed asymmetrically with respect to the rocking axis of the actuation member. The actuation projection forms an undercut for reaching behind the actuation projection, in order to be able to exercise the pull actuation of the rocker switch. The aspects relevant to safety require that a pull function is only possible through a pull actuation of the actuation member and not also through an unintentional push actuation of the actuation member in a region which, with respect to the rocking axis, is opposite to the actuation projection. For this purpose, as a rule, the push-pull rocker switches, which must fulfill these requirements, are disposed so far under a lining as an actuation protection, that from the latter only the cam-like actuation projection projects. However, such measures restrict the freedom to create the design of such a switch module.

Parts of such an electric switch module, which is integrated into the arm rest of a motor vehicle door, apart from the above described rocker switches for actuation the window

lifting mechanism, are further conventionally for example spring-loaded and/or are four-way switches, for example for adjusting the outside mirrors. In the conceptualization of such a switch module it must be ensured that no splash water penetrates into the interior of the switch module through the gap between the actuation members of the switches and a lining enclosing the actuation members; lastly, the functional capability of the switch module must be ensured even if a motor vehicle door is opened during rain. For this purpose the gap between the movable actuation members and the lining must be appropriately sealed.

Building on the discussed prior art, the invention's aim is to develop further an electric switch module according to the species and described above, in such manner that not only the freedom to design the control top side of such a switch module is less limited, but that also the impermeability to water can be realized to the highest desired degree feasible and with minimal additional expenditures.

According to the invention this aim is attained through an electric switch module according to the species and described in the introduction, in which the top side of the carrier with the actuation members of its switches is covered with a flexible outer skin enclosing the actuation elements of the at least one electric switch disposed on the carrier.

In this switch module the control top side of the carrier is covered overall with a flexible outer skin laid over the actuation elements of the electric switches disposed on the carrier. This outer skin encloses the actuation projection of the actuator of the at least one rocker switch. Through the outer skin covering the carrier, for one, the electric components of the switch module are effectively protected against splash water. Due to the flexible properties of the outer skin, the actuation members, located under the outer skin, of the utilized switches can readily be actuated. For this purpose the outer skin also encloses the actuation projection of the at least one push-pull rocker

switch. Especially practical is an implementation in which the outer skin has expandible properties and thus is elastic. With such an outer skin can also be enclosed actuation members of rocker switches which are conceptualized such that they have a high structure and/or have a relatively long actuation path. Through the outer skin covering the carrier, for another, an integrative gap-less surface is provided, in the conceptualization of which the responsible designer has markedly greater freedoms since he does not need to take safety-related requirements into account. An actuation protection relevant to safety - should this be necessary - is located beneath the outer skin and, consequently, is not visible to the user. Due to such an outer skin, the actuation members of the employed rocker switches, sensed by touch through the outer skin, can be designed without consideration of a possibly necessary actuation protection device. When conceptualizing such an electric switch module, the visible side of the outer skin, if desired, can entirely or partially be provided with an embossed pattern. Such an outer skin can be comprised, for example, of polyurethane or silicone.

The margin of such an outer skin can be connected possibly through an adhesive foam with the encircling margin of the carrier. Due to its flexible properties, the outer skin is appropriately not connected with the carrier over the entire area, respectively the actuation members of the rocker switches supported on the carrier. Rather, it is in principle sufficient to connect by adhesion the outer skin only locally with the carrier, respectively the actuation member of a rocker switch. The adhesion sites for connecting the outer skin with the carrier, respectively the actuation member of a rocker switch supported by it, can take into consideration the possible movement of the outer skin during the actuation of the actuation member, in order to make possible the operability of the same over its entire motion excursion. Accordingly, one section of the outer skin, located for example in a recessed grip or actuation of the rocker switch, can for example be resting loosely, such that during a pull actuation of the actuation member of the rocker switch, this region of the outer skin is raised from the underlying support, while in other regions the outer skin is fixed relative to the underlying

support. To position the flexible outer skin on the top side of the carrier covered by this skin, positioning knobs or beads projecting downwardly from the outer skin can be provided, which engage corresponding recesses or grooves of the carrier. These can be, for example, the gap present in any case between the actuation members of the switches and the carrier.

Covering the carrier with its electric switches with the above described outer skin, further, has the advantage that the mechanical structural parts -- carrier, actuation members, optionally actuation protection devices -- can be conceptualized with less concern for their functional scaling-down regarding their implementation

In the following, the invention will be explained in conjunction with an embodiment example with reference to the attached Figure 1. This figure depicts a schematic longitudinal section through an electric switch module 1. The switch module 1 is integrated into the arm rest of a motor vehicle door, not further described. The switch module 1 comprises two push-pull rocker switches 2, 3 disposed one behind the other. The push-pull rocker switches 2, 3 serve to actuate window pane lifting motors. Each of the push-pull rocker switches 2, 3 comprise an actuation member 4 with an asymmetric actuation projection 5 implemented as a cam. This and the following description of the subject matter of the invention refer to the push-pull rocker switch 2. The further push-pull rocker switch 3 of the depicted switch module 1 is structured correspondingly. For the sake of clarity, the further components, in particular the electric components, of the two push-pull rocker switches 2, 3 are not shown.

The actuation member 4 of the push-pull rocker switch 2 is supported rotatably about a rocking axis 6 on a carrier denoted overall by the reference symbol 7. Starting from the zero position of the actuation member 4, depicted in the figure, this member can be moved corresponding to the double-arrow label. To move the actuation member 4 serves the cam-like actuation projection 5. The actuation projection 5 is formed such

that it forms a lower recessed grip 8. When moving the actuation projection upwardly, the pane lifting motor for raising the window pane is activated through this push-pull rocker switch 2 to raise the pane and, with a reverse movement of the actuation member 4, is activated to lower the pane.

A portion of the carrier 7 is an actuation protection lining 9. The actuation protection lining 9 extends above the region of the actuation member 4 opposite the actuation projection 5 with respect to the rocking axis 6. The actuation protection lining 9 is rigid, such that through it the unintended actuation of the actuation member 4 in its section, opposite the actuation projection 5 with respect to rocking axis 6, is prevented. Through this measure, the raising of the pane activated by the push-pull rocker switch 2 cannot take place unintentionally through a push actuation in the section opposite the actuation projection 5 relative to the rocking axis 6.

The carrier 7 with all of its switches 2, 3 is covered by an integrative flexible outer skin 10 with a certain material elasticity, for example silicone. The outer skin 10 encloses the actuation projection 5 of the actuation member 4 and can, for example, be adhered with it in this section. As shown in the figure, the outer skin 10 in the region of the recessed grip 8 is neither connected through adhesion with the actuation member 4 nor with the carrier 7, as is the case in the region of the actuation projection 5 and in the remaining regions in which the outer skin 10 adjoins the carrier 7. Due to the material properties of the outer skin 10 and the described selective connection of the outer skin 10 with the carrier 7 or with the actuation projection 5, the actuation projection 5 of the actuation member 4 can travel a not inconsiderable motion excursion without being compromised through the enclosing outer skin 10. This is enhanced through the elastic properties of the material of the outer skin 10.

All gaps between the actuation members 4 of the individual switches 2, 3 and the carrier 7 are closed at the top side by the outer skin 10, such that the switch module 1 is

overall protected against splash water without additional measures being required for this purpose. The figure also shows that the impression of the two push-pull rocker switches 2, 3 is overall more readily apparent and is not only limited to the actuation projection 5. The outer skin 10 is connected with or is also a portion of an outer skin of the interior trim paneling of a door. Through the outer skin 10, consequently, an integrative outward appearance is provided. Superficial embossing of the outer skin 10, for example grained in the form of leather, could additionally lend this skin an attractive appearance and enhance an overall integrative impression of the surface.

## **List of Reference Symbols**

- 1 switch module
- 2 push-pull rocker switch
- 3 push-pull rocker switch
- 4 actuation member
- 5 actuation projection
- 6 rocking axis
- 7 carrier
- 8 recessed grip
- 9 actuation protection lining
- 10 outer skin